REMARKS

This Request for Reconsideration is filed in response to the non-final Office Action of September 21, 2010 in which claims 1-13 and 15-36 were rejected.

The Applicant's representative thanks the Examiner for the time taken to discuss this application on January 11, 2011. The first point discussed was the concise explanation on page 4 of the remarks section of the Request for Reconsideration filed June 15, 2009 and the Examiner indicated he would consider that explanation further and it is believed this explanation will help the Examiner in further prosecution.

In the interview of January 11, 2011 a further discussion was held about the fact that the Examiner now uses *Hannuksela et al* document US-2002/0105951 to allege that the claims are not new. In summary, the *Hannuksela et al* document relates to playback of streamed media. According to the Abstract there is provided a method of improving the playback of streamed media on a client device by overcoming problems caused by variations in the transmission delay of packets due to network and transport protocol operation and variations in encoding/server specific delays. In an embodiment of the invention of *Hannuksela et al*, a client device has a decoder (120) and a predecoder buffer (110) which receives streamed packets from a source server via a packet network. The pre-decoder buffer is variable in size and has a variable initial buffering time for receiving the transmitted packets from the source server prior to decoding in the decoder. The initial buffering time and pre-decoder buffer size can be dynamically adapted for improved playback performance by the source server. In a further aspect of the invention of *Hannuksela et al*, a post-decoder buffer operates in conjunction with the pre-encoder buffer to reduce decoding-related delay variations.

The Examiner alleged in the Office Action of September 21, 2010 that paragraphs [0040]—[0047] of *Hannuksela* disclose *the data transmission units ordered in a transmission order which is at least partly different from a decoding order of the media data in the data transmission units, wherein a parameter is defined indicative of the maximum number of data transmission units which have an earlier transmission order and a later decoding order than another data transmission unit in a packet stream; and providing said parameter to a decoder to determine buffering requirements.* In the interview of January 11,

2011 the Applicant's representative respectfully disagreed with this position. These cited paragraphs only disclose defining certain default buffer characteristics [0040]; signaling by a streaming client signal its default pre-decoder buffering capabilities to a source server [0041]; and transmitting by the server the packet stream in such a way that it can be played back in a substantially correct manner at the receiving client. More specifically, the source server transmits the packet stream so as to ensure that over-flow of the pre-decoder buffer in the receiving client does not occur and that all data chunks (e.g. frames) of the media data are available for playback in the receiving client at their scheduled playback times [0045]. The paragraph [0047] only discloses that in many practical streaming systems a streaming server is provided with a plurality of pre-encoded media streams representing the same media content. Each of the pre-encoded streams is encoded with different encoding parameters. This arrangement enables the media content to be streamed to a plurality different client terminal devices having different properties and/or capabilities and/or via networks having different characteristics (e.g. maximum available transmission bit-rate).

None of the cited paragraphs teach that data transmission units could be ordered in a transmission order which is at least partly different from a decoding order of the media data in the data transmission units, and that a parameter is defined which indicates the maximum number of data transmission units which have an earlier transmission order and a later decoding order than another data transmission unit in a packet stream.

The Examiner is requested to review again this explanation in relation to further prosecution and especially in light of the concise explanation referred to above that appears at page 4 of the remarks section of the Request for Reconsideration filed June 15, 2009, i.e., to better realize what is meant in the presently claimed invention by the transmission order being different from the decoding order and the maximum number of data transmission units having an earlier transmission order and a later decoding order than another data transmission unit:

> This is indeed not easy to explain in written form so Applicant would again like to give an example to help explain the meaning of the claimed language. Let us assume that we have transmission units A, B, C, D, E, F and G which shall be transmitted in this order. Let us also assume that the decoding order of these transmission units is C, A, B, D, F, E, G. We can see that the transmission unit A is transmitted (and received) first, but its decoding order is later than the decoding order of the transmission unit C. Therefore, the decoder also has to receive the transmission units B and C

> before the transmission unit A can be decoded. Hence, there are two transmission units (A and B) in transmission order before the transmission unit C which follow the transmission unit C in decoding order. Respectively, the transmission unit F is preceded by one transmission unit (E) in transmission order and succeeded in decoding order. In this example the parameter would contain the value 2.

In the interview of January 11, 2011, with regard to the precise language of the claims, the Examiner pointed to paragraph [0066] and paragraph [0067] of the published application (U.S. 2004/0223551). The Examiner indicated that these paragraphs indicate that the encoder outputs and transmits coded data in a first order and the other component reorders the coded data from the first order to another order and defines the required buffer size for the other order and forwards the coded data in its reordered form to the decoder. The Examiner also pointed to paragraph [0056] for a parameter that specifies the maximum amount of VCL NAL units that precede any VCL NAL unit in the NAL unit stream in NAL unit decoding order and follow the VCL NAL unit in RTP sequence number order or in the composition order of the aggregation packet containing the VCL NAL unit.

In response, a brief discussion then ensued about the content of paragraph [0129] where an id1 variable and an id2 variable are discussed and the Applicant's representative explained the difference and agreed to put some further explanations in writing to enable the Examiner to give due consideration to same. In brief, it was discussed orally that the id1 variable is different from what is presently claimed in that it indicates the maximum amount that precede in decoding order and follow in RTP sequence number order while the id2 variable, according to the present invention, indicates the maximum amount that precede in transmission order and follow in decoding order.

In what follows, further written explanations are provided, as requested, to definitively show that *Hannuksela et al* document is inapplicable as a 102 reference.

As mentioned, the Examiner referred to paragraphs [0056], [0066] and [0067] of the subject application publication (U.S. 2004/0223551). Paragraph [0056] discloses "*parameter num-reorder-VCL-NAL-units which is specified as follows: This parameter may be used to signal the properties of a NAL unit stream or the capabilities of a transmitter or receiver implementation. The parameter specifies the maximum amount of VCL NAL units that precede any VCL NAL unit in the NAL unit stream in NAL unit decoding order and follow the VCL NAL unit in RTP sequence number order or in the composition order of the aggregation*

packet containing the VCL NAL unit. If the parameter is not present, num-reorder-VCL-NAL-units equal to 0 must be implied. The value of num-reorder-VCL-NAL-units must be an integer in the range from 0 to 32767, inclusive." (Emphasis added)

The published paragraph [0063] of the present application explains that it is impossible to conclude buffering space and initial buffering time requirements based on the parameter *num-reorder-VCL-NAL-units*. The parameter *num-reorder-VCL-NAL-units* defines how many VCL-NAL units, which has an earlier decoding order than another VCL-NAL unit but which have a later RTP sequence number, may exist in a NAL unit stream. In other words, a NAL unit stream may contain a NAL unit, let's say I00, which is transmitted before some other NAL-units. Let's mark these other NAL-units as N58 and N59 as the example in paragraphs [0128]—[0130] on page 8 of the subject application's publication illustrates (the numbers indicate the decoding order in such a way that the numbers wrap around at 59 i.e. numbers 00—59 are in use in this example, wherein the NAL-units N58 and N59 belong to a previous group of pictures than I00). It is also assumed that these other NAL-units N58 and N59 have a decoding order preceding the decoding order of the NAL-unit I00. In this case, the value of the parameter *num-reorder-VCL-NAL-units* would be 2 wherein the decoder would buffer at least two NAL-units before it would begin the decoding of the NAL-unit stream. However, in this example the decoder would not need to buffer the NAL-units N58 and N59, but only the NAL-unit I00, because the decoder would be able to decode both N58 and N59 when they have been received.

On the basis of the parameter *num-reorder-VCL-NAL-units* (or the parameter id1 used in the present application) the decoder is aware that any NAL-unit in the NAL-unit stream shall be followed by id1 NAL-units (or less) which have an earlier decoding order. So, using the same example than above, if id1 = 3, the following NAL-unit stream could exist: …, I00, R57, N58, N59, R03, N01, N02, R06, … (I00 is followed by max. three NAL-units R57, N58, N59 having an earlier decoding time than I00).

In the examples above, the decoder could still properly decode the bit stream if it buffered only one NAL-unit at a time (although id1 had the value 2 or 3 and would indicate that the decoder should be able to buffer two or three NAL-units):

- first, the decoder buffers I00,
- then it decodes the NAL-units R57, N58, N59.

- Now, it's time to decode I00.
- Next, the decoder buffers R03 and
- decodes NAL-units N01 and N02.
- Then the NAL-unit R03 is decoded and
- the NAL-unit R06 is buffered etc.

Hence, according to the claimed invention, the value of the parameter would be 1 which is different from the *Hannuksela et al* document's parameter *num-reorder-VCL-NAL-units*.

Claim 1 recites *a parameter is defined indicative of the maximum number of data transmission units that precede any one of data transmission units in a packet stream in the transmission order and follow the data transmission unit in the decoding order.* Although this parameter may sound similar to the *num-reorder-VCL-NAL-units* parameter, it is still not the same thing. The *num-reorder-VCL-NAL-units* parameter defines *the maximum amount of VCL NAL units that precede any VCL NAL unit in the NAL unit stream in NAL unit decoding order and follow the VCL NAL unit in RTP sequence number order or in the composition order of the aggregation packet* as was briefly pointed out to the Examiner in the interview of January 11, 2011.

Regarding the Examiner's reference to paragraphs [0066] and [0067] it should now be more apparent that it is not relevant to the claimed invention. Paragraph [0067] discloses that the encoder outputs and transmits coded data to another component, such as a streaming server, in a first order, where the other component reorders the coded data from the first order to another order, defines the required buffer size for the another order and forwards the coded data in its reordered form to the decoder. In this case the decoder can send the coded data e.g. in the encoding order to the streaming server which reorders the coded data to a transmission order, determines the value for the parameter, and transmits the parameter and the coded data in the transmission order to a decoder. The decoder may then use the parameter to determine the buffering requirements.

Therefore, in light of the interview of January 11, 2011 summarized above and the further written remarks above, reconsideration and withdrawal of the novelty and obviousness rejections is requested.

It should be mentioned that an IDS was filed on December 1, 2010 disclosing a Canadian Office Action in a parallel application related to U.S. Patent Application 10/782,371 which issued as U.S. Patent No. 7,296,205 (our Ref. No. 915-010.010). Consideration is requested.

The objections and rejections of the Office Action of September 21, 2010, having been obviated by amendment or shown to be inapplicable withdrawal thereof is requested and passage of pending claims 1-13 and 15-36 to issue is earnestly solicited.

Respectfully submitted,

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